

CLAIMS

1. A device for holding a separation column or cartridge, comprising:

5 a. a first housing having a chamber for receiving one or more columns or cartridges, said columns and cartridges having an inlet for receiving fluid and an outlet for discharging fluid and an column axis corresponding generally with the flow of fluid from said inlet to said outlet, said column and cartridges for performing separations, said housing having a heating element for maintaining said chamber at a constant
10 temperature; and

b. positioning means for placing said column and cartridge outlet in proximity to a detector.

15 2. The device of claim 1 wherein said detector is selected from the group of detectors consisting of mass spectrometers; optical detectors, such as photodiode array detectors, ramon light scattering detectors, absorbance detectors, fluorescence detectors, refractometers, electro-chemical detectors, viscosity detectors and the like.

20 3. The device of claim 1 wherein said first housing has a cradle, said cradle having an cradle axis of rotation substantially aligned parallel with said column axis and said cradle having an open position and a closed position upon rotation, and cradle opening for receiving said columns and cartridges, said opening shut upon said cradle assuming said closed position and said opening accessible upon said cradle assuming
25 said open position.

4. The device of claim 3 wherein said heating element is contained in said cradle.

5. The device of claim 4 wherein said heating element is electrical resistance circuits.

30 6. The device of claim 1 wherein said positioning means is an arm having an attachment means for coupling to at least one of the group consisting of a pump or

sample injector or combinations of a pump and a sample injector, said arm articulated to allow positioning proximal to a detector.

7. The device of claim 1 wherein said positioning means is selected from the group consisting of a slide, interfitting sliding elements, flexible conduit elements and combinations thereof having an attachment means for coupling to at least one of the group consisting of a pump or sample injector or combinations of a pump and a sample injector, said slide allowing positioning proximal to a detector.
- 10 8. The device of claim 1 wherein said positioning element is a hinge for attachment to apparatus selected from the group consisting of a pump, sample injector or combined modules of pumps and sample injector.
- 15 9. The device of claim 6, 7 or 8 further comprising an apparatus selected from the group consisting of a pump, sampler injector or a combined module of a pump and sample injector.
10. The device of claim 1 wherein positioning said outlet of said column and cartridge close to the detector minimizes band spreading.
- 20 11. A method of minimizing band spreading in separation processes comprising the steps of providing a first housing having a chamber for receiving one or more columns or cartridges, said columns and cartridges having an inlet for receiving fluid and an outlet for discharging fluid and an column axis corresponding generally with the flow of fluid from said inlet to said outlet, said column and cartridges for performing separations, said housing having a heating element for maintaining said chamber at a constant temperature; and positioning means for placing said column and cartridge outlet in proximity to a detector to allow connection to a detector whereby the proximity to said detector minimizes tubing spanning from said column outlet to said detector and minimizes band spreading.
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12. The method of claim 11 wherein said detector is selected from the group of detectors consisting of mass spectrometers; optical detectors, such as photodiode array detectors, ramon light scattering detectors, absorbance detectors, fluorescence detectors, refractometers, electro-chemical detectors, viscosity detectors and the like.

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13. The method of claim 11 wherein said first housing has a cradle, said cradle having an cradle axis of rotation substantially aligned with said column axis and said cradle having an open position and a closed position, and cradle opening for receiving said columns and cartridges, said opening shut upon said cradle assuming said closed position and said opening accessible upon said cradle assuming said open position.

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14. The method of claim 11 wherein said heating element is contained in said cradle.

15. The method of claim 11 wherein said heating element is electrical resistance

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circuits.

16. The method of claim 11 wherein said positioning element is a hinge for attachment to apparatus selected from the group consisting of a pump, sample injector or combined modules of pumps and sample injector.

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17. The method of claim 16 further comprising an apparatus selected from the group consisting of a pump, sample injector or a combined module of a pump and sample injector.

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18. The method of claim 11 wherein said positioning means is selected from the group consisting of a slide, arm, linkage, interfitting sliding elements, flexible conduit elements, hinge or combinations thereof.

19. The method of claim 18 wherein said positioning means is adjusted to bring said

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outlet of said column and cartridge in close proximity to said detector.